

**AMENDMENTS TO THE CLAIMS**

1. (Canceled) A jet fuel additive for reducing a pollutant emission, the additive comprising: a plant oil extract; an antioxidant; and a thermal stabilizer.
2. (Canceled) The jet fuel additive of claim 1, wherein the plant oil extract comprises an oil extract of a plant of the Leguminosae family.
3. (Canceled) The jet fuel additive of claim 1, wherein the plant oil extract is selected from the group consisting of oil extract of vetch and oil extract of barley.
4. (Canceled) The jet fuel additive of claim 1, wherein the plant oil extract comprises chlorophyll.
5. (Canceled) The jet fuel additive of claim 1, wherein the antioxidant comprises  $\beta$ -carotene.
6. (Canceled) The jet fuel additive of claim 1, wherein the thermal stabilizer comprises jojoba oil.
7. (Canceled) The jet fuel additive of claim 1, wherein the thermal stabilizer comprises an ester of a C20-C22 straight chain monounsaturated carboxylic acid.
8. (Canceled) The jet fuel additive of claim 1, wherein the plant oil extract comprises oil extract of vetch, wherein the antioxidant comprises  $\beta$ -carotene, and wherein the thermal stabilizer comprises jojoba oil.
9. (Canceled) The jet fuel additive of claim 1, further comprising a diluent.

10. (Canceled) The jet fuel additive of claim 9, wherein the diluent is selected from the group consisting of toluene, jet fuel additive, jet fuel, jet fuel, and mixtures thereof.
11. (Canceled) The jet fuel additive of claim 1, further comprising an oxygenate.
12. (Canceled) The jet fuel additive of claim 11, wherein the oxygenate is selected from the group consisting of methanol, ethanol, methyl tertiary butyl ether, ethyl tertiary butyl ether, and tertiary amyl methyl ether, and mixtures thereof.
13. (Canceled) The jet fuel additive of claim 1, further comprising at least one additional additive selected from the group consisting of cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, antiwear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, and mixtures thereof.
14. (Canceled) The jet fuel of claim 13, wherein a ratio of grams of plant oil extract of vetch to grams of  $\beta$ -carotene in the jet fuel is from about 50:1 to about 1:0.05, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the jet fuel is from about 12:1 to about 1:0.05, and wherein a ratio of milliliters jojoba oil to grams of  $\beta$ -carotene in the jet fuel is from about 12: 1 to about 1:0.5.
15. (Canceled) The jet fuel of claim 13, wherein a ratio of grams of plant oil extract of vetch to grams of  $\beta$ -carotene in the jet fuel is from about 24:1 to about 1:0.1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the jet fuel is from about

6:1 to about 1:0.1, and wherein a ratio of milliliters jojoba oil to grams of  $\beta$ -carotene in the jet fuel is from about 6:1 to about 1:1.

16. (Canceled) The jet fuel of claim 13, comprising from about 0.0013 g to about 0.023 g oil extract of vetch per 3785 ml jet fuel, from about 0.00053 g to about 0.021 g  $\beta$ -carotene per 3785 ml jet fuel, and from about 0.0018 ml to about 0.022 ml jojoba oil per 3785 ml jet fuel.
17. (Canceled) A jet fuel, the jet fuel comprising a base fuel and an additive for increasing smoke point of the jet fuel, the additive comprising  $\beta$ -carotene.
18. (Canceled) The jet fuel of claim 17, further comprising at least one additional additive selected from the group consisting of detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, antiwear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, thermal stability improvers, and mixtures thereof.
19. (Canceled) The jet fuel of claim 17, further comprising a plant oil extract.
20. (Canceled) The jet fuel of claim 17, further comprising a thermal stabilizer.
21. (Canceled) The jet fuel of claim 17, further comprising a plant oil extract and a thermal stabilizer.
22. (Canceled) The jet fuel of claim 19, wherein the plant oil extract comprises an oil extract of a plant of the Leguminosae family.

23. (Canceled) The jet fuel of claim 19, wherein the plant oil extract is selected from the group consisting of oil extract of vetch and oil extract of barley.
24. (Canceled) The jet fuel of claim 19, wherein the plant oil extract comprises chlorophyll.
25. (Canceled) The jet fuel of claim 19, wherein the thermal stabilizer comprises jojoba oil.
26. (Canceled) The jet fuel of claim 19, wherein the thermal stabilizer comprises an ester of a C20-C22 straight chain monounsaturated carboxylic acid.
27. (Canceled) The jet fuel of claim 21, wherein the plant oil extract comprises oil extract of vetch and the thermal stabilizer comprises jojoba oil.
28. (Canceled) The jet fuel of claim 17, comprising from about 0.0010 g to about 0.01 g of  $\beta$ -carotene per 3785 ml of jet fuel.
29. (Canceled) The jet fuel of claim 17, comprising from about 0.0021 g to about 0.0063 g of  $\beta$ -carotene per 3785 ml of jet fuel.
30. (Canceled) A jet fuel additive for reducing a pollutant emission, the additive comprising: a plant oil extract; an antioxidant; and a thermal stabilizer.
31. (Canceled) The jet fuel additive of claim 30, wherein the plant oil extract comprises an oil extract of a plant of the Leguminosae family.
32. (Canceled) The jet fuel additive of claim 30, wherein the plant oil extract is selected from the group consisting of oil extract of vetch and oil extract of barley.

33. (Canceled) The jet fuel additive of claim 30, wherein the plant oil extract comprises chlorophyll.
34. (Canceled) The jet fuel additive of claim 30, wherein the antioxidant comprises  $\beta$ -carotene.
35. (Canceled) The jet fuel additive of claim 30, wherein the thermal stabilizer comprises jojoba oil.
36. (Canceled) The jet fuel additive of claim 30, wherein the thermal stabilizer comprises an ester of a C20-C22 straight chain monounsaturated carboxylic acid.
37. (Canceled) The jet fuel additive of claim 30, wherein the plant oil extract comprises oil extract of vetch, wherein the antioxidant comprises  $\beta$ -carotene, and wherein the thermal stabilizer comprises jojoba oil.
38. (Canceled) The jet fuel additive of claim 30, further comprising a diluent.
39. (Canceled) The jet fuel additive of claim 38, wherein the diluent is selected from the group consisting of toluene, gasoline, diesel fuel, jet fuel, and mixtures thereof.
40. (Canceled) The jet fuel additive of claim 37, wherein a ratio of grams of plant oil extract of vetch to grams of  $\beta$ -carotene in the additive is from about 50:1 to about 1:0.05, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is from about 12:1 to about 1:0.05, and wherein a ratio of milliliters jojoba oil to grams of  $\beta$ -carotene in the additive is from about 12:1 to about 1:0.5.
41. (Canceled) The jet fuel additive of claim 37, wherein a ratio of grams of plant oil extract of vetch to grams of  $\beta$ -carotene in the additive is from about 24:1 to about 1:0.1, wherein a ratio of grams

of oil extract of vetch to milliliters jojoba oil in the additive is from about 6:1 to about 1:0.1, and wherein a ratio of milliliters jojoba oil to grams of  $\beta$ -carotene in the additive is from about 6:1 to about 1:1.

42. (Canceled) A method for operating a vehicle equipped with a jet engine, the method comprising the step of: combusting a jet fuel in the engine whereby an exhaust is produced, the exhaust having a smoke point, wherein the jet fuel comprises a base fuel, an antioxidant, and a thermal stabilizer, and wherein the smoke point of the jet fuel is greater than a smoke point of the base fuel.
43. (Canceled) A method for operating a vehicle equipped with a jet engine, the method comprising the step of: combusting a jet fuel in the engine, wherein the jet fuel has a smoke point, wherein the jet fuel comprises a base fuel and  $\beta$ -carotene, and wherein the smoke point of the jet fuel is greater than a smoke point of the base fuel.
44. (Previously presented) A jet fuel additive comprising
  - a plant oil extract derived from grain;
  - a carotenoid; and
  - a thermal stabilizer.
45. (Previously presented) The additive of claim 44, wherein the grain is selected from the group consisting of fescue, clover, wheat, barley, oats, rye, sorghum, flax, triticale, rice, corn, spelt, millet, amaranth, buckwheat, quinoa, kamut and teff.
46. (Previously presented) The additive of claim 44 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.

47. (Previously presented) The additive of claim 44, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof
48. (Previously presented) The additive of claim 44 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
49. (Previously presented) The additive of claim 44 wherein the thermal stabilizer is meadowfoam oil.
50. (Previously presented) The additive of claim 44 further comprising a diluent.
51. (Amended) The additive of claim 44 further comprising a solvent selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, jet fuel, jet fuel, jet fuel, 2 cycle oil, resid fuel and mixtures thereof.
52. (Previously presented) The additive of claim 44 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
53. (Amended) A jet fuel additive comprising:
  - a hydrophobic plant oil extract;
  - a carotenoid; and

a thermal stabilizer selected from the group consisting of peanut oil, cottonseed oil, rape seed oil, macadamia oil, avocado oil, palm oil, palm kernel oil, meadowfoam oil and mixtures thereof.

54. (Previously presented) The additive of claim 53 wherein the plant oil extract is derived from a member of the Leguminosae family.
55. (Previously presented) The additive of claim 53 wherein the plant oil extract is derived from grain.
56. (Previously presented) The additive of claim 53 further comprising a diluent.
57. (Amended) The additive of claim 53 further comprising a solvent selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, jet fuel, jet fuel, jet fuel, 2 cycle oil, resid fuel and mixtures thereof.
58. (Previously presented) The additive of claim 53 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
59. (Previously presented) The additive of claim 53, wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
60. (Previously presented) The additive of claim 53 wherein the plant oil extract is barley oil extract, and the carotenoid is  $\beta$ -carotene.



61. (Previously presented) The additive of claim 53 further comprising meadowfoam oil.
62. (Previously presented) A jet fuel additive comprising;  
  
a plant oil extract selected from the group consisting of hops oil extract, fescue oil extract, barley oil extract, green clover oil extract, wheat oil extract and mixtures thereof;  
  
a carotenoid; and  
  
a thermal stabilizer.
63. (Previously presented) The additive of claim 62 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
64. (Previously presented) The additive of claim 62, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof
65. (Previously presented) The additive of claim 62 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
66. (Previously presented) The additive of claim 62 wherein the thermal stabilizer is meadowfoam oil.
67. (Previously presented) The additive of claim 62 further comprising a diluent.
68. (Amended) The additive of claim 62 further comprising a solvent selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, jet fuel, jet fuel, jet fuel, 2 cycle oil, resid fuel and mixtures thereof.

69. (Previously presented) The additive of claim 62 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
70. (Canceled). The additive of claim 62 wherein the plant oil extract is barley oil extract, and the carotenoid is  $\beta$ -carotene.
71. (Previously presented) A jet fuel comprising a base fuel and at least one additive wherein the additive comprises:
- a plant oil extract derived from grain;
  - a carotenoid; and
  - a thermal stabilizer.
72. (Previously presented) The jet fuel of claim 71, wherein the grain is selected from the group consisting of fescue, clover, wheat, barley, oats, rye, sorghum, flax, triticale, rice, corn, spelt, millet, amaranth, buckwheat, quinoa, kamut and teff.
73. (Previously presented) The jet fuel of claim 71 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
74. (Previously presented) The jet fuel of claim 71, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof.

75. (Previously presented) The jet fuel of claim 71 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
76. (Previously presented) The jet fuel of claim 71 wherein the thermal stabilizer is meadowfoam oil.
77. (Previously presented) The jet fuel of claim 71 further comprising a diluent.
78. (Amended) The jet fuel of claim 71 further comprising a solvent selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, jet fuel, jet fuel, jet fuel, 2 cycle oil and resid fuel and mixtures thereof.
79. (Previously presented) The jet fuel of claim 71 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
80. (Canceled) The jet fuel of claim 71 wherein the plant oil extract is barley oil extract, the carotenoid is  $\beta$ -carotene.
81. (Amended) A jet fuel comprising a base fuel and at least one additive wherein the additive comprises:
  - a hydrophobic plant oil extract;
  - a carotenoid; and

a thermal stabilizer selected from the group consisting of peanut oil, cottonseed oil, rape seed oil, macadamia oil, avocado oil, palm oil, palm kernel oil, meadowfoam oil and mixtures thereof.

82. (Previously presented) The jet fuel of claim 81 wherein the plant oil extract is derived from a member of the Leguminosae family.
83. (Previously presented) The jet fuel of claim 81 wherein the plant oil extract is derived from grain.
84. (Previously presented) The jet fuel of claim 81 further comprising a diluent.
85. (Amended) The jet fuel of claim 81 further comprising a solvent selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, jet fuel, jet fuel, jet fuel, 2 cycle oil and resid fuel and mixtures thereof.
86. (Previously presented) The jet fuel of claim 81 further comprising at least one additive selected from the group selected from octane improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.
87. (Previously presented) The jet fuel of claim 81, wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
88. (Previously presented) The jet fuel of claim 81 wherein the plant oil extract is barley oil extract, the carotenoid is  $\beta$ -carotene.

89. (Amended) A jet fuel comprising a base feed and at least one additive wherein the additive comprises:

a plant oil extract selected from the group consisting of hops oil extract, fescue oil extract, barley oil extract, green clover oil extract, wheat oil extract and mixtures thereof;

a carotenoid; and

a thermal stabilizer.

90. (Previously presented) The jet fuel of claim 89 wherein the carotenoid is selected from the group consisting of  $\beta$ -carotene,  $\alpha$ -carotene, lycopene, leutin, betatene and mixtures thereof.
91. (Previously presented) The jet fuel of claim 89, wherein the thermal stabilizer is selected from the group consisting of vegetable oils, nut oils, animal oils and mixtures thereof
92. (Previously presented) The jet fuel of claim 89 wherein the plant oil extract is derived from barley and the carotenoid is  $\beta$ -carotene.
93. (Previously presented) The jet fuel of claim 89 wherein the thermal stabilizer is meadowfoam oil.
94. (Previously presented) The jet fuel of claim 89 further comprising a diluent.
95. (Amended) The jet fuel of claim 89 further comprising a solvent selected from the group consisting of toluene, benzene, o-xylene, m-xylene, p-xylene, cyclohexanes, hexane, octanes, nonanes, jet fuel, jet fuel, jet fuel, 2 cycle oil and resid fuel and mixtures thereof.
96. (Previously presented) The jet fuel of claim 95 further comprising at least one additive selected from the group selected from octane

improvers, cetane improvers, detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, anti-wear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, oxygenates and mixtures thereof.

97. (Canceled) The jet fuel of claim 89 wherein the plant oil extract is barley oil extract, the carotenoid is  $\beta$ -carotene.